

## Exhibit B

Invalidity Chart for the '080 Patent  
( '538 Patent in view of the '056 Patent)

INVALIDITY CLAIM CHART B  
U.S. PATENT NO. 5,581,080 ('538 Patent in view of '056 Patent)

**The '080 patent is invalid for obviousness-type double patenting over U.S. Patent No. 5,130,538 to Fenn et al. ("the '538 patent"), either alone or in view of U.S. Patent No. 4,531,056 to Labowsky et al. ("the '056 patent").**

5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
Claim 10 (depends from 1) (claim 1) A method of determining the molecular weight of molecules by use of a mass analyzer, comprising the steps of:  generating a population of polyatomic ions which are multiply charged from a distinct polyatomic parent molecular species,  the number of charges on each of said ions defining said ion's charge state number,  said population of ions comprising a plurality of sub-populations, the ions of each sub-population having the same charge state number,  said population comprising sub-populations having charge state numbers of a minimum value and a maximum value, said minimum value being not less than three and said maximum value being not less than five;  using said mass analyzer to perform a mass analysis of said ions in said population to obtain mass/charge (m/z) values for said ions of said sub-populations; and,  determining the molecular weight of	Claim 5 of the '538 Patent (claim 1) A method of determining the molecular weight of molecules comprising the steps of:  generating a population of multiply charged ions from a distinct polyatomic parent molecular species,  the number of charges on said ions defining the ion's charge state number,  said population of ions comprising a plurality of sub-populations, the ions of each sub-population having the same charge state number,  said population including one sub-population for each possible integral value of charge state number extending inclusively from a minimum of three to a maximum not less than five;  carrying out a mass analysis of the ions in said population and from the results of said mass analysis obtaining mass/charge (m/z) values for said ions of said sub-populations; and  determining a value of the molecular weight of said distinct	Claim 10 of the '080 patent differs from claim 5 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 10 of the '080 patent is therefore not patentably distinct from the '538 patent. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.  Including the step of "determining" of the molecular weight from the values of mass/charge (m/z) recited in Claim 10 of the '080 patent is not only obvious, but also does not render the otherwise invalid claims patentable. <i>See, e.g., Parker v. Flook</i> , 47 U.S. 548, 98 S.Ct. 2522 (1978).

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5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
<p>said distinct polyatomic parent molecular species from said mass/charge (m/z) values of said ions of said sub-populations.</p> <p>(claim 10, depends from claim 1) ... wherein said minimum value of said charge state number is not less than seven and said maximum value is not less than ten.</p>	<p>polyatomic parent molecular species from the mass/charge (m/z) values of said ions of said sub-populations.</p> <p>(claim 5, depends from claim 1) ... wherein said minimum value of charge state number is not less than five and said maximum value is not less than ten.</p>	
<p>Claim 14 (depends from 12, which depends from 7, which depends from 1)</p>	<p>Claim 15 of the '538 Patent</p>	
<p>(claim 7, depends from claim 1) The method of claim 1, wherein said minimum value of said charge state number is not less than five and said maximum value is not less than eight. ----- (claim 12, depends from claim 7) ... wherein the step of using said mass analyzer to perform said mass analysis of the ions in said population produces a mass spectrum of ions comprising a sequence of peaks, each of said peaks in said sequence having an m/z value corresponding to the m/z value of the ions of one of said sub-populations, and wherein the molecular weight of said distinct polyatomic parent molecular species is determined from the mass/charge (m/z) values of said peaks in said spectrum. ----- (claim 14, depends from 12)</p>	<p>(claim 10, depends from claim 1) The method of claim 1 wherein the step of carrying out said mass analysis of the ions in said population produces a mass spectrum of ions, said mass spectrum comprising a sequence of peaks, each of said peaks having an m/z value corresponding to the m/z value of the ions of said distinct [sic] polyatomic molecular species in one of said sub-populations, and wherein the molecular weight of said distinct polyatomic parent molecular species is determined from the mass/charge (m/z) values of said peaks in said mass spectrum. ----- (claim 15, depends from claim 10)</p>	<p>Claim 14 of the '080 patent depends from claim 12 of the '080 patent, which depends from claim 7 of the '080 patent, which depends from claim 1 of the '080 patent. Claim 1 of the '080 patent is invalid for the reasons stated above regarding claim 10 of the '080 patent.</p> <p>Claim 7 of the '080 patent adds to claim 1 of the '080 patent of that "said minimum value of said charge state number is not less than five and said maximum value is not less than eight."</p> <p>Claim 12 of the '080 patent adds that carrying out mass analysis produces a sequence of peaks corresponding to m/z values. This is anticipated or at least obvious over claim 10 of the '538 patent, which recites similar language.</p> <p>Claim 14 of the '080 patent adds that "said minimum value of said charge state number is not less than seven and</p>

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. . . wherein said minimum value of said charge state number is not less than seven and said maximum value is not less than ten.	. . . wherein said minimum value of charge value of [sic] charge state number is not less than five and said maximum value is not less than ten.	said maximum value is not less than ten." Claim 14 of the '080 patent differs from claim 15 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 14 of the '080 patent is therefore not patentably distinct from the '538 patent. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 31	Claim 34 in view of Claim 20 of the '538 Patent or Claim 34 of the '538 Patent in view of the '056 patent	
<p>A method for determining the molecular weight of a polyatomic molecular species, comprising the steps of:</p> <p>taking a polyatomic molecular species dissolved in solution, and</p> <p>dispersing said solution into a gas in the presence of an electric field to form charged droplets;</p> <p>evaporating said charged droplets to disperse said polyatomic molecular species in said gas as multiply charged ions in a gaseous phase;</p>	<p>(claim 20)</p> <p>A method for producing a population of multiply charged ions, wherein all members of said population with a molecular weight greater than 5000 have at least three charges per ion, comprising the steps of:</p> <p>p1 supplying a solution containing as a solute at least one distinct polyatomic parent molecular species with a molecular weight greater than 5000, all molecules of each of said distinct polyatomic parent molecular species having substantially the same molecular weight and a structure that cannot be represented as a polymer of a single monomeric species;</p> <p>dispersing said solution as charged droplets into a bath gas, said dispersion taking place in the presence of an electric field; and</p> <p>allowing the solvent of said solution to vaporize from said charged droplets into said bath gas until at least some molecules of at least one of said distinct polyatomic parent molecular species become dispersed in said bath gas as said multiply charged ions.</p> <p>-----</p>	<p>Claim 31 of the '080 patent differs from claim 34 of the '538 patent in that claim 31 of the '080 patent includes steps related to the electrospray ionization mechanism by which ions for analysis are generated. Not only are these steps disclosed by claim 20 of the '538 patent, but they are also disclosed by the prior art '056 patent at 2:53-60, directed to an electrospray ion source for mass spectrometry.</p> <p>Including the step of "determining" the molecular weight from the values of mass/charge (m/z) recited in Claim 31 of the '080 patent is not only obvious, but also does not render the otherwise invalid claims patentable. <i>See, e.g., Parker v. Flook</i>, 47 U.S. 548, 98 S.Ct. 2522 (1978).</p>

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5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
<p>mass analyzing said multiply charged ions to detect some of said multiply charged ions and obtain a set of mass/charge (m/z) values for said detected multiply charged ions, wherein each of said detected multiply charged ions has at least three charges; and,</p> <p>determining the molecular weight of said polyatomic molecular species by a calculation that takes into account at least two different mass/charge (m/z) values from said set.</p>	<p>(claim 34) A method of determining the molecular weight of a distinct polyatomic parent molecular species comprising:</p> <p>generating a mass spectrum comprising a sequence of discrete peaks due to multiply charged ions of said distinct polyatomic parent molecular species, each of said multiply charged ions having at least three charges; and</p> <p>analyzing said peaks of said spectrum to determined [sic] a value of said molecular weight of said distinct polyatomic parent molecular species.</p>	
Claim 32 (depends from 31)	Claim 35 of the '538 Patent	
<p>A method according to claim 31</p> <p>in which each of said detected multiply charged ions has at least five charges.</p>	<p>(claim 35, depends from claim 34)</p> <p>... wherein each of said multiply charged ions has at least five charges.</p>	<p>Claim 32 of the '080 patent depends from claim 31 of the '080 patent, which is invalid for the reasons listed above.</p> <p>Claim 32 adds "in which each of said detected multiply charged ions has at least five charges," which is recited by claim 35 of the '538 patent.</p>
Claim 33 (depends from 31)	Claim 35 of the '538 Patent	
<p>A method according to claim 31</p> <p>in which each of said detected multiply charged ions has at least seven charges.</p>	<p>(claim 35, depends from claim 34)</p> <p>... wherein each of said multiply charged ions has at least five charges.</p>	<p>Claim 33 of the '080 patent differs from claim 35 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 33 of the '080 patent is therefore not patentably</p>

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5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
		distinct from the '538 patent. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 34 (may depend from 31, but on its face, recites it depends from 3)	Claim 35 of the '538 Patent	
A method according to claim 3[1]  in which each of said detected multiply charged ions corresponding to said mass/charge values has at least ten charges.	(claim 35, depends from claim 34)  ... wherein each of said multiply charged ions has at least five charges.	Claim 34 of the '080 patent differs from claim 35 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 34 of the '080 patent is therefore not patentably distinct from the '538 patent. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 35 (depends from 31)	Claim 35 of the '538 Patent	
A method according to claim 31  in which each of said detected multiply charged ions corresponding to said mass/charge values has at least twelve charges.	(claim 35, depends from claim 34)  ... wherein each of said multiply charged ions has at least five charges.	Claim 35 of the '080 patent differs from claim 35 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 35 of the '080 patent is therefore not patentably distinct from the '538 patent. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 36	Claim 34 in view of Claim 20 of the '538 Patent or Claim 34 of the '538 Patent in view of the '056 patent	
A method for determining the molecular weight of a polyatomic molecular species, comprising the steps of:  taking a polyatomic molecular species	(claim 20) A method for producing a population of multiply charged ions, wherein all members of said population with a molecular weight greater than 5000 have at least three charges per ion, comprising the steps of:  p1 supplying a solution containing as a solute at least one	Claim 36 of the '080 patent differs from claim 34 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 36 of the '080 patent is therefore not patentably

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<p>dissolved in solution, and</p> <p>dispersing said solution into a gas in the presence of an electric field to form charged droplets;</p> <p>evaporating said charged droplets to disperse said polyatomic molecular species in said gas as multiply charged ions in a gaseous phase;</p> <p>mass analyzing said multiply charged ions to detect some of said multiply charged ions and obtain a set of mass/charge (m/z) values for said detected multiply charged ions,</p> <p>wherein each of said detected multiply charged ions has at least six charges; and,</p> <p>determining the molecular weight of said polyatomic molecular species by a calculation that takes into account at least two different mass/charge (m/z) values from said set.</p>	<p>distinct polyatomic parent molecular species with a molecular weight greater than 5000, all molecules of each of said distinct polyatomic parent molecular species having substantially the same molecular weight and a structure that cannot be represented as a polymer of a single monomeric species;</p> <p>dispersing said solution as charged droplets into a bath gas, said dispersion taking place in the presence of an electric field; and</p> <p>allowing the solvent of said solution to vaporize from said charged droplets into said bath gas until at least some molecules of at least one of said distinct polyatomic parent molecular species become dispersed in said bath gas as said multiply charged ions.</p> <p>-----</p> <p>(claim 34) A method of determining the molecular weight of a distinct polyatomic parent molecular species comprising:</p> <p>generating a mass spectrum comprising a sequence of discrete peaks due to multiply charged ions of said distinct polyatomic parent molecular species,</p> <p>each of said multiply charged ions having at least three charges; and</p> <p>analyzing said peaks of said spectrum to determined [sic] a value of said molecular weight of said distinct polyatomic parent molecular species</p>	<p>distinct from the '538 patent. <i>See In re Wertheim</i>, 541 F.2d at 267; <i>In re Peterson</i>, 65 U.S.P.Q.2d at 1382.</p> <p>Additionally, Claim 36 of the '080 patent differs from claim 34 of the '538 patent in that Claim 36 of the '080 patent includes steps related to the electrospray ionization mechanism by which ions for analysis are generated. Not only are these steps disclosed by claim 20 of the '538 patent, but they are also disclosed by the prior art '056 patent at 2:53-60, directed to an electrospray ion source for mass spectrometry.</p> <p>Including the step of "determining the molecular weight of said polyatomic molecular species by a calculation" from the values of mass/charge (m/z) in Claim 36 of the '080 patent is not only obvious, but also does not render the otherwise invalid claims patentable. <i>See, e.g., Parker v. Flook</i>, 47 U.S. 548, 98 S.Ct. 2522 (1978).</p>
Claim 37 (depends from 36)	Claim 35 of the '538 Patent	
A method according to claim 36,	(claim 35, depends from claim 34)	Claim 37 of the '080 patent differs from claim 35 of the '538 patent in the range

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wherein each of said detected multiply charged ions has at least fourteen charges.	... wherein each of said multiply charged ions has at least five charges.	of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 37 of the '080 patent is therefore not patentably distinct from the '538 patent. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 42	Claim 34 in view of Claim 20 of the '538 Patent or Claim 34 of the '538 Patent in view of the '056 patent	
<p>A method for determining the molecular weight of a polyatomic molecular species, comprising the steps of:</p> <p>taking a solution containing a polyatomic molecular species dissolved in solution, and</p> <p>dispersing said solution into a gas in the presence of an electric field to form charged droplets;</p> <p>evaporating said charged droplets to disperse said polyatomic molecular species in said gas as multiply charged ions in a gaseous phase;</p>	<p>(claim 20) A method for producing a population of multiply charged ions, wherein all members of said population with a molecular weight greater than 5000 have at least three charges per ion, comprising the steps of:</p> <p>p1 supplying a solution containing as a solute at least one distinct polyatomic parent molecular species with a molecular weight greater than 5000, all molecules of each of said distinct polyatomic parent molecular species having substantially the same molecular weight and a structure that cannot be represented as a polymer of a single monomeric species;</p> <p>dispersing said solution as charged droplets into a bath gas, said dispersion taking place in the presence of an electric field; and</p> <p>allowing the solvent of said solution to vaporize from said charged droplets into said bath gas until at least some molecules of at least one of said distinct polyatomic parent molecular species become dispersed in said bath gas as said multiply charged ions.</p> <p>----- (claim 34) A method of determining the molecular weight of a distinct polyatomic parent molecular species comprising:</p>	<p>Claim 42 of the '080 patent differs from claim 34 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 42 of the '080 patent is therefore not patentably distinct from the '538 patent. <i>See In re Wertheim</i>, 541 F.2d at 267; <i>In re Peterson</i>, 65 U.S.P.Q.2d at 1382.</p> <p>Claim 42 of the '080 patent includes steps related to the electrospray ionization mechanism by which ions for analysis are generated. This is obvious because, not only are these steps disclosed by claim 20 of the '538 patent, but they are also disclosed by the prior art '056 patent at 2:53-60, directed to an electrospray ion source for mass spectrometry.</p> <p>Including the step of "determining" of the molecular weight from the values of mass/charge (m/z) recited in Claim 42 of the '080 patent is not only obvious, but also does not render the otherwise</p>



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<p>mass analyzing said multiply charged ions to obtain a set of mass/charge (m/z) values for said multiply charged ions wherein</p> <p>the minimum value of charge on each of said multiply charged ions for which said mass/charge are obtained is at least three and the maximum value of charge is not less than five; and,</p> <p>determining the molecular weight of said polyatomic molecular species by a calculation that takes into account at least two different mass/charge (m/z) values from said set.</p>	<p>generating a mass spectrum comprising a sequence of discrete peaks due to multiply charged ions of said distinct polyatomic parent molecular species,</p> <p>each of said multiply charged ions having at least three charges; and</p> <p>analyzing said peaks of said spectrum to determined [sic] a value of said molecular weight of said distinct polyatomic parent molecular species</p>	<p>invalid claims patentable. See, e.g., <i>Parker v. Flook</i>, 47 U.S. 548, 98 S.Ct. 2522 (1978).</p>
Claim 44 (depends from Claim 42)	Claim 35 of the '538 Patent	
<p>A method according to claim 42,</p> <p>in which said minimum value is not less than five and said maximum value is not less than seven.</p>	<p>(claim 35, depends from claim 34)</p> <p>... wherein each of said multiply charged ions has at least five charges.</p>	<p>Claim 44 of the '080 patent differs from claim 35 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 44 of the '080 patent is therefore not patentably distinct from the '538 patent. See <i>In re Wertheim</i>, 541 F.2d at 267; <i>In re Peterson</i>, 65 U.S.P.Q.2d at 1382.</p>
Claim 45 (depends from Claim 42)	Claim 35 of the '538 Patent	
<p>A method according to claim 42,</p> <p>in which said minimum value is at least seven and said maximum value is not less than ten.</p>	<p>(claim 35, depends from claim 34)</p> <p>... wherein each of said multiply charged ions has at least five charges.</p>	<p>Claim 45 of the '080 patent differs from claim 35 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 45 of the '080 patent is therefore not patentably</p>

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		distinct from the '538 patent. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 46 (depends from 42)	Claim 35 of the '538 Patent (claim 35 depends from 34)	
A method according to claim 42,  in which said minimum value is at least ten and said maximum value is not less than twelve.	(claim 35, depends from claim 34)  ... wherein each of said multiply charged ions has at least five charges.	Claim 46 of the '080 patent differs from claim 35 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 46 of the '080 patent is therefore not patentably distinct from the '538 patent. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 47	Claim 34 in view of Claim 20 of the '538 Patent or Claim 34 of the '538 Patent in view of the '056 patent (claim 20)	
A method for determining the molecular weight of a polyatomic molecular species using a mass analyzer, comprising the steps of:  taking a solution containing a polyatomic molecular species and  dispersing said solution into a gas in the presence of an electric field to form charged droplets;  evaporating said charged droplets to disperse said polyatomic molecular	A method for producing a population of multiply charged ions, wherein all members of said population with a molecular weight greater than 5000 have at least three charges per ion, comprising the steps of:  p1 supplying a solution containing as a solute at least one distinct polyatomic parent molecular species with a molecular weight greater than 5000, all molecules of each of said distinct polyatomic parent molecular species having substantially the same molecular weight and a structure that cannot be represented as a polymer of a single monomeric species;  dispersing said solution as charged droplets into a bath gas, said dispersion taking place in the presence of an electric field; and  allowing the solvent of said solution to vaporize from said charged droplets into said bath gas until at least some	Claim 47 of the '080 patent differs from claim 34 of the '538 patent in that claim 47 of the '080 patent includes steps related to the electrospray ionization mechanism by which ions for analysis are generated. This is obvious because, not only are these steps disclosed by claim 20 of the '538 patent, but they are also disclosed by the prior art '056 patent at 2:53-60, directed to an electrospray ion source for mass spectrometry.  Including the step of "determining the molecular weight" from the values of mass/charge (m/z) recited in Claim 47 of the '080 patent is not only obvious, but also does not render the otherwise invalid claims patentable. <i>See, e.g., Parker v. Flook</i> , 47 U.S. 548, 98 S.Ct.

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<p>species in said gas as multiply charged ions in a gaseous phase,</p> <p>each of said ions from said polyatomic species comprising at least three charges during a period of time between formation of said ions and detection of said ions by a mass analyzer;</p> <p>mass analyzing said multiply charged ions to detect multiply charged ions comprising at least three charges and to obtain a set of mass/charge (m/z) values for said detected multiply charged ions; and,</p> <p>determining the molecular weight of said polyatomic molecular species by a calculation that takes into account at least two different mass/charge (m/z) values from said set.</p>	<p>molecules of at least one of said distinct polyatomic parent molecular species become dispersed in said bath gas as said multiply charged ions.</p> <p>----- (claim 34) A method of determining the molecular weight of a distinct polyatomic parent molecular species comprising:</p> <p>generating a mass spectrum comprising a sequence of discrete peaks due to multiply charged ions of said distinct polyatomic parent molecular species,</p> <p>each of said multiply charged ions having at least three charges; and</p> <p>analyzing said peaks of said spectrum to determined [sic] a value of said molecular weight of said distinct polyatomic parent molecular species.</p>	<p>2522 (1978).</p>
<p>Claim 48 (depends from claim 47)</p>	<p>Claim 34 of the '538 Patent</p>	
<p>A method according to claim 47,</p> <p>in which each of said ions from said polyatomic molecular species comprises at least five charges at a period of time between formation of said ions and detection of said ions by said mass analyzer.</p>	<p>(claim 34) A method of determining the molecular weight of a distinct polyatomic parent molecular species comprising:</p> <p>generating a mass spectrum comprising a sequence of discrete peaks due to multiply charged ions of said distinct polyatomic parent molecular species,</p> <p>each of said multiply charged ions having at least three charges; and</p> <p>analyzing said peaks of said spectrum to determined [sic] a value of said molecular weight of said distinct polyatomic</p>	<p>Claim 48 of the '080 patent differs from claim 34 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 48 of the '080 patent is therefore not patentably distinct from the '538 patent. <i>See In re Wertheim</i>, 541 F.2d at 267; <i>In re Peterson</i>, 65 U.S.P.Q.2d at 1382.</p> <p>Additionally, claim 48 of the '080 patent is not patentably distinct from claim 34</p>

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	parent molecular species.	of the '538 patent for requiring that the multiply charged ions have the recited charges "at a period of time between formation of said ions and detection of said ions by said mass analyzer." This property is disclosed by claim 34 of the '538 patent because in order to generate a mass spectrum from ions having at least three charges, those ions must have at least three charges at the time they are detected by the mass analyzer.
Claim 49 (depends from claim 47)	Claim 34 of the '538 Patent	
(A method according to claim 47,  in which each of said ions from said polyatomic molecular species comprises at least eight charges at a period of time between formation of said ions and detection of said ions by said mass analyzer.	(claim 34) A method of determining the molecular weight of a distinct polyatomic parent molecular species comprising:  generating a mass spectrum comprising a sequence of discrete peaks due to multiply charged ions of said distinct polyatomic parent molecular species, each of said multiply charged ions having at least three charges; and  analyzing said peaks of said spectrum to determined [sic] a value of said molecular weight of said distinct polyatomic parent molecular species.	Claim 49 of the '080 patent differs from claim 34 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 49 of the '080 patent is therefore not patentably distinct from the '538 patent. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.  Additionally, claim 49 of the '080 patent is not patentably distinct from claim 34 of the '538 patent for requiring that the multiply charged ions have the recited charges "at a period of time between formation of said ions and detection of said ions by said mass analyzer." This property is disclosed by claim 34 of the '538 patent because in order to generate a mass spectrum from ions having at least three charges, those ions must have at least three charges at the time they are detected by the mass

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		analyzer.
Claim 50	Claim 20 of the '538 Patent	
<p>A method for determining the molecular weight of molecules by producing a population of multiply charged ions for detection by a mass analyzer,</p> <p>wherein all members of said population with a molecular weight greater than 5000 have at least three charges per ion, comprising the steps of:</p> <p>supplying a solution containing as a solute at least one distinct polyatomic parent molecular species with a molecular weight greater than 5000 daltons, all molecules of each of said distinct polyatomic parent molecular species having substantially the same molecular weight;</p> <p>dispersing said solution into a gas in the presence of an electric field to form charged droplets; and,</p> <p>evaporating said charged droplets until at least some molecules of at least one of said distinct polyatomic parent molecular species become dispersed as multiply charged ions in a gaseous phase.</p>	<p>A method for producing a population of multiply charged ions,</p> <p>wherein all members of said population with a molecular weight greater than 5000 have at least three charges per ion, comprising the steps of:</p> <p>p1 supplying a solution containing as a solute at least one distinct polyatomic parent molecular species with a molecular weight greater than 5000, all molecules of each of said distinct polyatomic parent molecular species having substantially the same molecular weight</p> <p>and a structure that cannot be represented as a polymer of a single monomeric species;</p> <p>dispersing said solution as charged droplets into a bath gas, said dispersion taking place in the presence of an electric field; and</p> <p>allowing the solvent of said solution to vaporize from said charged droplets into said bath gas until at least some molecules of at least one of said distinct polyatomic parent molecular species become dispersed in said bath gas as said multiply charged ions.</p>	<p>Each element of claim 50 of the '080 patent is found in claim 20 of the '538 patent.</p> <p>Claim 20 of the '538 patent recites the additional element that that the parent molecular species "cannot be represented as a polymer of a single monomeric species." Claim 20 of the '538 patent therefore recites a species of the genus of "parent molecular species" encompassed by claim 50 of the '080 patent and still anticipates the claim. <i>See In re Goodman</i>, 11 F.3d at 1053 (holding that an earlier species claim anticipates and therefore is not patentably distinct from a later genus claim).</p>
Claim 51 (depends from 50)	Claim 21 of the '538 Patent alone or in view of the '056 Patent	

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U.S. PATENT NO. 5,581,080 ('538 Patent in view of '056 Patent)

5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
<p>The method of claim 50</p> <p>wherein at least one of said distinct polyatomic parent molecular species with molecular weight greater than 5000 daltons is chosen from the class comprising biopolymers.</p>	<p>(claim 21, depends from claim 20)</p> <p>... wherein at least one of said distinct polyatomic [sic] parent molecular species is chosen from the class comprising biopolymers.</p>	<p>Claim 51 of the '080 patent differs from claim 50 of the '080 patent (the claim from which it depends) by stating that at least one of the "distinct polyatomic parent molecular species with molecular weight greater than 5000 daltons [recited in claim 50] is chosen from the class comprising biopolymers."</p> <p>Claim 51 of the '080 patent is therefore obvious/anticipated by claim 21 of the '538 patent, which depends from claim 20 of the '538 patent and recites this same language.</p> <p>Moreover, it would have been obvious in view of the '056 patent to apply the method of claim 21 of the '538 patent to biopolymers. See '056 Patent at 3:7-14 (indicating the electrospray ionization method of the '056 patent is "well suited for the ionisation of thermally unstable molecules, such as those frequently encountered in biochemistry").</p>
Claim 52 (depends from 50)	Claim 26 of the '538 Patent	
<p>The method of claim 50,</p> <p>wherein all of said multiply charged ions with molecular weights greater than 5000 have at least five charges per said ion.</p>	<p>(claim 26, depends from claim 20)</p> <p>... wherein all members of said population with molecular weights greater than 5000 have at least five charges per ion.</p>	<p>Claim 51 of the '080 patent differs from claim 50 of the '080 patent (the claim from which it depends) by stating that all of the "multiply charged ions with molecular weights greater than 5000 have at least five charges per said ion."</p> <p>Claim 52 of the '080 patent is therefore obvious/anticipated by claim 26 of the '538 patent, which depends from claim 20 of the '538 patent and recites this same language.</p>

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U.S. PATENT NO. 5,581,080 ('538 Patent in view of '056 Patent)

5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
Claim 53 (depends from 50) The method of claim 50,  wherein all of said multiply charged ions with molecular weights greater than 5000 have at least seven charges per said ion.	Claim 26 of the '538 Patent (claim 26, depends from claim 20)  ... wherein all members of said population with molecular weights greater than 5000 have at least five charges per ion.	Claim 53 of the '080 patent differs from claim 50 of the '080 patent (the claim from which it depends) by stating that all of the "multiply charged ions with molecular weights greater than 5000 have at least seven charges per said ion."  Claim 53 of the '080 patent is therefore rendered obvious by claim 26 of the '538 patent, which depends from claim 20 of the '538 patent and recites similar language. The language differs in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 53 of the '080 patent is therefore not patentably distinct from the '538 patent. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 54 (depends from 50) The method of claim 50,  wherein at least one of said distinct polyatomic parent molecular species is chosen from the class known as biopolymers.	Claim 21 of the '538 Patent alone or in view of the '056 Patent (claim 21, depends from claim 20)  ... wherein at least one of said distinct polyatomic [sic] parent molecular species is chosen from the class comprising biopolymers.	Claim 54 of the '080 patent differs from claim 50 of the '080 patent (the claim from which it depends) by stating that at least one of the "distinct polyatomic parent molecular species [recited in claim 50] is chosen from the class known as biopolymers."  Claim 54 of the '080 patent is therefore obvious/anticipated by claim 21 of the '538 patent, which depends from claim 20 of the '538 patent and similarly

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5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
		<p>recites that the polyatomic parent molecular species is chosen from biopolymers.</p> <p>Moreover, it would have been obvious in view of the '056 patent to apply the method of claim 21 of the '538 patent to biopolymers. See '056 Patent at 3:7-14 (indicating the electrospray ionization method of the '056 patent is "well suited for the ionisation of thermally unstable molecules, such as those frequently encountered in biochemistry").</p>
Claim 55	Claim 35 in view of Claim 20 of the '538 Patent or Claim 35 of the '538 Patent in view of the '056 patent	
<p>A method of determining the molecular weight of molecules, comprising the steps of:</p> <p>(a) generating a population comprising multiply charged ions from a distinct polyatomic parent molecular species by:</p> <p>(i) dispersing a solution containing said polyatomic molecular species into a gas in the presence of an electric field to form charged droplets;</p> <p>(ii) evaporating said charged droplets until at least some molecules of said distinct polyatomic parent molecular</p>	<p>(claim 20) A method for producing a population of multiply charged ions, wherein all members of said population with a molecular weight greater than 5000 have at least three charges per ion, comprising the steps of:</p> <p>p1 supplying a solution containing as a solute at least one distinct polyatomic parent molecular species with a molecular weight greater than 5000, all molecules of each of said distinct polyatomic parent molecular species having substantially the same molecular weight and a structure that cannot be represented as a polymer of a single monomeric species;</p> <p>dispersing said solution as charged droplets into a bath gas, said dispersion taking place in the presence of an electric field; and</p> <p>allowing the solvent of said solution to vaporize from said charged droplets into said bath gas until at least some molecules of at least one of said distinct polyatomic parent</p>	<p>Claim 55 of the '080 patent differs from claim 35 of the '538 patent in that claim 55 of the '080 patent includes steps related to the electrospray ionization mechanism by which ions for analysis are generated. This is obvious because, not only are these steps disclosed by claim 20 of the '538 patent, but they are also disclosed by the prior art '056 patent at 2:53-60, directed to an electrospray ion source for mass spectrometry.</p> <p>Including the step of "determining a value of the molecular weight of said distinct polyatomic parent molecular species from said mass/charge (m/z) values" in claim 55 of the '080 patent is not only obvious, but also does not render the otherwise invalid claims patentable. See, e.g., <i>Parker v. Flook</i>, 47 U.S. 548, 98 S.Ct. 2522 (1978).</p>



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U.S. PATENT NO. 5,581,080 ('538 Patent in view of '056 Patent)

5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
<p>species become dispersed as a population of multiply charged ions in a gaseous phase,</p> <p>some of said multiply charged ions in said population having a charge state number at least five;</p> <p>(b) carrying out a mass analysis of said multiply charged ions in said population and from the results of said mass analysis obtaining mass/charge (m/z) values; and,</p> <p>(c) determining a value of the molecular weight of said distinct polyatomic parent molecular species from said mass/charge (m/z) values.</p>	<p>molecular species become dispersed in said bath gas as said multiply charged ions.</p> <p>-----</p> <p>(claim 35, depends from claim 34) ... wherein each of said multiply charged ions has at least five charges</p> <p>-----</p> <p>(claim 34) A method of determining the molecular weight of a distinct polyatomic parent molecular species comprising:</p> <p>generating a mass spectrum comprising a sequence of discrete peaks due to multiply charged ions of said distinct polyatomic parent molecular species, each of said multiply charged ions having at least three charges; and</p> <p>analyzing said peaks of said spectrum to determined [sic] a value of said molecular weight of said distinct polyatomic parent molecular species</p>	
Claim 56 (depends from 55)	Claim 34 of the '538 Patent	
<p>A method according to claim 55</p> <p>wherein some of said multiply charged ions have a charge state number greater than eight.</p>	<p>(claim 34)</p> <p>... each of said multiply charged ions having at least three charges;</p>	<p>Claim 56 of the '080 patent differs from claim 34 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 56 of the '080 patent is therefore not patentably distinct from the '538 patent. <i>See In re Wertheim</i>, 541 F.2d at 267; <i>In re Peterson</i>, 65 U.S.P.Q.2d at 1382.</p>
Claim 57 (depends from 55)	Claim 34 of the '538 Patent	
A method according to claim 55,	(claim 34)	<p>Claim 57 of the '080 patent differs from claim 34 of the '538 patent in the range</p>

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5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
wherein some of said multiply charged ions have a charge state number greater than twelve.	... each of said multiply charged ions having at least three charges;	of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 57 of the '080 patent is therefore not patentably distinct from the '538 patent. See <i>In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 58 (depends from 55)	Claim 36 of the '538 Patent	
The method of claim 55,  wherein at least two mass/charge values are used to determine said molecular weight of said polyatomic parent molecular species.	(claim 36, depends from claim 35, which depends from claim 34) ... wherein said step of analyzing sequence of discrete peaks of said spectrum includes uses [sic] the mass/charge (m/z) values of at least two of said peaks in said sequence of discrete peaks, said sequence of discrete peaks having coherence whereby the ions of any arbitrarily chosen one of said peaks in said sequence differ by one charge from the ions of the nearest peak whose ions are derived from molecules of the same distinct polyatomic parent molecular species.	Claim 58 of the '080 patent differs from claim 55 of the '080 patent (the claim from which it depends) by stating that "at least two mass/charge values are used to determine said molecular weight of said polyatomic parent molecular species." Claim 58 of the '080 patent is therefore obvious/ anticipated by claim 36 of the '538 patent (which depends from claim 35, which depends from claim 34), which recites similar language.  The claims differ in that claim 58 of the '080 patent more generally recites that "at least two mass/charge values are used to determine said molecular weight of said polyatomic parent molecular species," where claim 36 of the '538 patent requires that the "at least two peaks" "differ by one charge from the ions of the nearest peak." In other words, claim 58 of the '080 patent permits the calculation of the molecular weight based on an analysis of any two peaks from the mass spectrum, while claim 36 of the '538 patent requires the use of peaks with the specified

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5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
		relationship. Thus, claim 58 of the '080 patent recites a genus that would be anticipated by the species recited by claim 36 of the '538 patent. <i>See In re Goodman</i> , 11 F.3d at 1053 (holding that an earlier species claim anticipates and therefore is not patentably distinct from a later genus claim).  Furthermore one of ordinary skill would understand how to use two mass-charge values to determine the molecular weight of the species.
Claim 59 (depends from 54, which depends from 50)	Claim 21 of the '538 Patent	
A method according to claim 54,  wherein said population comprises at least one sub-population whose charge state number is greater than eight.	(claim 20)  A method for producing a population of multiply charged ions, wherein all members of said population with a molecular weight greater than 5000 have at least three charges per ion, comprising the steps of: . . . -----  (See claim 21 (depends from claim 20) above)	Claim 59 of the '080 patent differs from claim 21 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 59 of the '080 patent is therefore not patentably distinct from the '538 patent. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 60 (depends from 54, which depends from 50)	Claim 21 of the '538 Patent	
A method according to claim 54,  wherein said population comprises at least one sub-population whose charge state number is greater than ten.	(claim 20)  A method for producing a population of multiply charged ions, wherein all members of said population with a molecular weight greater than 5000 have at least three charges per ion, comprising the steps of: . . . -----  (See claim 21 (depends from claim 20) above)	Claim 60 of the '080 patent differs from claim 21 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 60 of the '080 patent is therefore not patentably distinct from the '538 patent. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re</i>

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5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
		<i>Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 61	Claim 34 in view of claim 27 of the '538 Patent or Claim 34 of the '538 Patent in view of the '056 patent.	
<p>A method of determining the molecular weight of at least one component of a mixture of distinct polyatomic molecular species by using a mass analyzer, comprising the steps of:</p> <p>generating multiply charged ions from a distinct polyatomic molecular species having at least twenty atoms by</p> <p>dispersing and evaporating a solution containing said distinct polyatomic molecular species in the presence of an electric field and a gas;</p>	<p>(claim 20) A method for producing a population of multiply charged ions, wherein all members of said population with a molecular weight greater than 5000 have at least three charges per ion, comprising the steps of:</p> <p>p1 supplying a solution containing as a solute at least one distinct polyatomic parent molecular species with a molecular weight greater than 5000, all molecules of each of said distinct polyatomic parent molecular species having substantially the same molecular weight and a structure that cannot be represented as a polymer of a single monomeric species;</p> <p>dispersing said solution as charged droplets into a bath gas, said dispersion taking place in the presence of an electric field; and allowing the solvent of said solution to vaporize from said charged droplets into said bath gas until at least some molecules of at least one of said distinct polyatomic parent molecular species become dispersed in said bath gas as said multiply charged ions.</p> <p>----- (claim 26, depends from claim 20) . . . wherein all members of said population with molecular weights greater than 5000 have at least five charges per ion.</p> <p>(claim 27, depends from claim 26) . . . wherein at least one of said distinct polyatomic parent molecular species is chosen from the class known as biopolymers and comprising peptides, proteins, glycoproteins, carbohydrates and polynucleotides.</p> <p>-----</p>	<p>Claim 61 of the '080 patent specifies that the "distinct polyatomic molecular species" has "at least twenty atoms" where claim 34 of the '538 patent does not explicitly recite any requirements with regard to the number of atoms. It would have been obvious to one of ordinary skill in the art to apply the method of claim 34 of the '538 patent to polyatomic molecules having at least twenty atoms in view of claim 27 of the '538 patent. Claim 27 of the '538 patent recites a method of determining the molecular weight of a "distinct polyatomic parent molecular species with a molecular weight greater than 5000" from "the class known as biopolymers and comprising peptides, proteins, glycoproteins, carbohydrates and polynucleotides." One of ordinary skill in the art would recognize that any biochemical with a molecular weight greater than 5000 Daltons must contain substantially more than 20 atoms because such molecular species would be made of atoms of H (1 Dalton), O (16 Daltons), C (12 Daltons), and N (14 Daltons). See <i>a/so</i> the '056 patent at 3:7-14 (indicating electrospray ionization can be conducted "from solutes of very high molecular weights (e.g. 500,000), and . . . is therefore well suited for the ionisation of thermally unstable molecules, such as those frequently</p>

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5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
<p>mass analyzing said multiply charged ions and from results of said mass analysis obtaining mass charge (m/z) values; and,</p> <p>determining a value of the molecular weight of said distinct polyatomic parent molecular species from said mass/charge (m/z) values.</p>	<p>(claim 34) A method of determining the molecular weight of a distinct polyatomic parent molecular species comprising:</p> <p>generating a mass spectrum comprising a sequence of discrete peaks due to multiply charged ions of said distinct polyatomic parent molecular species, each of said multiply charged ions having at least three charges; and</p> <p>analyzing said peaks of said spectrum to determined [sic] a value of said molecular weight of said distinct polyatomic parent molecular species.</p>	<p>encountered in biochemistry").</p> <p>Additionally, Claim 61 of the '080 patent differs from claim 34 of the '538 patent in that claim 61 of the '080 patent includes steps related to the electrospray ionization mechanism by which ions for analysis are generated. These steps are disclosed by claim 20 of the '538 patent. They are also disclosed by the prior art '056 patent at 2:53-60, directed to an electrospray ion source for mass spectrometry and describes electrospray ionization.</p> <p>Including the step of "determining a value of the molecular weight of said distinct polyatomic parent molecular species from said mass/charge (m/z) values" in Claim 61 of the '080 patent is not only obvious, but also does not render the otherwise invalid claims patentable. <i>See, e.g., Parker v. Flook</i>, 47 U.S. 548, 98 S.Ct. 2522 (1978).</p>
Claim 62 (depends from 61)	Claim 34 in view of claim 27 of the '538 Patent or Claim 34 of the '538 Patent in view of the '056 patent.	
<p>The method according of claim 61, wherein said polyatomic molecular species has atoms from at least four different elements.</p>	<p>(claim 27) ... wherein at least one of said distinct polyatomic parent molecular species is chosen from the class known as biopolymers and comprising peptides, proteins, glycoproteins, carbohydrates and polynucleotides.</p> <p>-----</p> <p>(claim 34) A method of determining the molecular weight of a distinct polyatomic parent molecular species comprising:</p>	<p>Claim 62 of the '080 patent depends from claim 61 of the '080 patent and is therefore invalid for all of the reasons stated above with regard to claims 27 and 34 of the '538 patent.</p> <p>Claim 62 of the '080 patent additionally recites that the polyatomic molecular species of claim 61 have "atoms from at least four different elements." As noted above for claim 61 of the '080 patent, it</p>

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5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
	generating a mass spectrum comprising a sequence of discrete peaks due to multiply charged ions of said distinct polyatomic parent molecular species, each of said multiply charged ions having at least three charges; . . .	would have been obvious to one of ordinary skill in the art that the method of claim 34 in the '538 patent could be applied to biochemical molecules, many of which are composed of at least four different elements—C, O, H, and N. Again, this is especially true in view of claim 27 of the '538 patent and/or the '056 patent (describing electrospray ionization of molecules “such as those frequently encountered in biochemistry”).
Claim 63	Claim 35 in view of claim 27 of the '538 Patent or Claim 35 of the '538 Patent in view of the '056 patent.	
<p>A method of determining the molecular weight of molecules by using a mass analyzer, comprising the steps of:</p> <p>(a) generating a population comprising multiply charged ions from a solution of a distinct polyatomic parent molecular species, wherein said distinct polyatomic parent molecular species comprises atoms from at least four different elements, one of said elements being carbon said multiply charged ions being generated by:</p> <p>(i) dispersing said solution into a gas in the presence of an electric field to form charged droplets; and,</p> <p>(ii) evaporating said charged droplets to form said multiply charged ions;</p>	<p>(claim 20) A method for producing a population of multiply charged ions, wherein all members of said population with a molecular weight greater than 5000 have at least three charges per ion, comprising the steps of:</p> <p>p1 supplying a solution containing as a solute at least one distinct polyatomic parent molecular species with a molecular weight greater than 5000, all molecules of each of said distinct polyatomic parent molecular species having substantially the same molecular weight and a structure that cannot be represented as a polymer of a single monomeric species;</p> <p>dispersing said solution as charged droplets into a bath gas, said dispersion taking place in the presence of an electric field; and</p> <p>allowing the solvent of said solution to vaporize from said charged droplets into said bath gas until at least some molecules of at least one of said distinct polyatomic parent</p>	<p>As noted above for claims 61 and 62 of the '080 patent, it would have been obvious to one of ordinary skill in the art that the method of claim 34 of the '538 patent could be applied to biochemical molecules, many of which are composed of at least four different elements—C, O, H, and N as recited by claim 63 of the '080 patent. Again, this is especially true in view of the '056 patent or claim 27 of the '538 patent.</p> <p>Claim 63 of the '080 patent differs from claim 35 of the '538 patent in that claim 63 of the '080 patent includes steps related to the electrospray ionization mechanism by which ions for analysis are generated. These steps are disclosed by claim 20 of the '538 patent. They are also disclosed by the prior art '056 patent at 2:53-60, directed to an electrospray ion source for mass spectrometry.</p>

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5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
<p>(b) detecting at least one multiply charged ion having at least five charges; and,</p> <p>(c) determining the molecular weight of said polyatomic parent molecular species from the mass/charge m/z value of said multiply charged ion having at least five charges.</p>	<p>molecular species become dispersed in said bath gas as said multiply charged ions.</p> <p>-----</p> <p>(claim 26, depends from claim 20)  . . . wherein all members of said population with molecular weights greater than 5000 have at least five charges per ion.</p> <p>(claim 27, depends from claim 26)  . . . wherein at least one of said distinct polyatomic parent molecular species is chosen from the class known as biopolymers and comprising peptides, proteins, glycoproteins, carbohydrates and polynucleotides.</p> <p>-----</p> <p>(claim 34)  A method of determining the molecular weight of a distinct polyatomic parent molecular species comprising:</p> <p>generating a mass spectrum comprising a sequence of discrete peaks due to multiply charged ions of said distinct polyatomic parent molecular species, each of said multiply charged ions having at least three charges; and</p> <p>analyzing said peaks of said spectrum to determined [sic] a value of said molecular weight of said distinct polyatomic parent molecular species.</p> <p>-----</p> <p>(claim 35, depends from claim 34)  . . . wherein each of said multiply charged ions has at least five charges.</p>	<p>Including the step of “determining the molecular weight of said polyatomic parent molecular species from the mass/charge m/z value” in Claim 63 of the '080 patent is not only obvious, but also does not render the otherwise invalid claims patentable. See, e.g., <i>Parker v. Flook</i>, 47 U.S. 548, 98 S.Ct. 2522 (1978).</p>
Claim 64 (depends from 63)	Claim 35 of the '538 Patent	
<p>A method according to claim 63</p> <p>wherein said multiply charged ion comprises at least twenty charges.</p>	<p>(claim 35, depends from claim 34)</p> <p>. . . wherein each of said multiply charged ions has at least five charges.</p>	<p>Claim 64 of the '080 patent differs from claim 35 of the '538 patent in the range of charge states recited. Where the range recited in a claim overlaps or lies within the prior art, a prima facie case of obviousness exists and claim 64 of the '080 patent is therefore not patentably</p>

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		distinct from the '538 patent. <i>See In re Wertheim</i> , 541 F.2d at 267; <i>In re Peterson</i> , 65 U.S.P.Q.2d at 1382.
Claim 65 (depends from 63)	Claim 38 of the '538 Patent	
<p>A method according to claim 63</p> <p>wherein at least two of said multiply charged ions are used to determine said molecular weight of said polyatomic parent molecular species.</p>	<p>(claim 38, which depends from claim 34)</p> <p>... wherein said step of analyzing said sequence of discrete peaks of said spectrum includes uses the mass/charge (m/z) values of at least two of said peaks in said sequence of discrete peaks, said sequence of discrete peaks having a coherence whereby the ions of any arbitrarily chosen one of said peaks in said sequence differ by one charge from the ions of the nearest peak whose ions are derived from identical molecules of the same said distinct polyatomic parent molecular species.</p>	<p>Claim 65 of the '080 patent depends from claim 63 of the '080 patent and is invalid for all the same reasons listed above with regard to claims 27 and 34 of the '538 patent (and claims from which they depend).</p> <p>Claim 65 of the '080 patent differs from claim 63 of the '080 patent (the claim from which it depends) by stating that "at least two of said multiply charged ions are used to determine said molecular weight of said polyatomic parent molecular species." Claim 65 of the '080 patent is therefore obvious/anticipated by claim 38 of the '538 patent (which depends from claim 34), which recites similar language.</p> <p>The claims differ in that claim 65 of the '080 patent more generally recites that "two of said multiply charged ions are used to determine said molecular weight of said polyatomic parent molecular species," where claim 38 of the '538 patent requires that the "at least two peaks" "differ by one charge from the ions of the nearest peak." In other words, claim 65 of the '080 patent permits the calculation of the molecular weight based on an analysis of any two peaks from the mass spectrum, while claim 38 of the '538 patent requires the</p>



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5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
		<p>use of peaks with the specified relationship. Thus, claim 65 of the '080 patent recites a genus that would be anticipated by the species recited by claim 36 of the '538 patent. <i>See In re Goodman</i>, 11 F.3d at 1053 (holding that an earlier species claim anticipates and therefore is not patentably distinct from a later genus claim).</p> <p>Furthermore one of ordinary skill would understand how to use two mass-charge values to determine the molecular weight of the species.</p>
Claim 66 (depends from 63)	Claim 35 of the '538 Patent alone or in view of the '056 patent	
<p>A method according to claim 63</p> <p>wherein the number of atoms in said polyatomic parent molecular species is at least three times as high as the minimum charge state of said multiply charged ions.</p>	<p>(claim 35, depends from claim 34)</p> <p>... wherein each of said multiply charged ions has at least five charges.</p>	<p>Claim 66 of the '080 patent depends from claim 63 of the '080 patent and is invalid for all the same reasons listed above with regard to claims 27 and 35 of the '538 patent (and the claims from which they depend).</p> <p>Claim 66 of the '080 patent differs from claim 63 in that it recites that the number of charges per ion is some fraction of the number of atoms in the ion. This cannot render the claims patentably distinct from the claims of the '538 patent. <i>See, e.g., In re Baxter</i>, 656 F.2d 679, 685 (C.C.P.A. 1981) ("We are persuaded that, in the absence of any significance attributed to the ethylene-to-propylene ratio, it would have been obvious to one of ordinary skill in the art that the ratio could be varied depending on the type of copolymer desired.").</p>

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U.S. PATENT NO. 5,581,080 ('538 Patent in view of '056 Patent)

5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
		Moreover, it would have been obvious to one of ordinary skill in the art that when ionized for mass spectrometry, biomolecules as described in the '056 patent with molecular weights up to 500,000 Daltons, which contain hundreds of atoms, must have a number of atoms at least ten times higher than the number of charges recited by the claims of the '538 patent.
Claim 67 (depends from 63)	Claim 35 of the '538 Patent	
A method according to claim 63  wherein the number of atoms in said polyatomic parent molecular species is at least five times as high as the minimum charge state of said multiply charged ions.	(claim 35, depends from claim 34)  ... wherein each of said multiply charged ions has at least five charges.	Claim 67 of the '080 patent depends from claim 63 of the '080 patent and is invalid for all the same reasons listed above with regard to claims 27 and 35 of the '538 patent (and the claims from which they depend).  Moreover, claim 67 of the '080 patent recites that the number of charges per ion is some fraction of the number of atoms in the ion, a type of limitation that cannot render the claims patentably distinct from the claims of the '538 patent for the same reasons set forth above with respect to the obviousness of Claim 66 of the '080 patent.
Claim 68 (depends from 63)	Claim 35 of the '538 Patent	
A method according to claim 63  wherein the number of atoms in said polyatomic parent molecular species is at least ten times as high as the minimum charge state of said multiply charged ions.	(claim 35, depends from claim 34)  ... wherein each of said multiply charged ions has at least five charges.	Claim 68 of the '080 patent depends from claim 63 of the '080 patent and is invalid for all the same reasons listed above with regard to claims 27 and 35 of the '538 patent (and the claims from which they depend).

INVALIDITY CLAIM CHART B  
U.S. PATENT NO. 5,581,080 ('538 Patent in view of '056 Patent)

5,581,080	'538 Patent	Basis of Invalidity Contention (incl. in view of the '056 patent)
		Moreover, claim 68 of the '080 patent recites that the number of charges per ion is some fraction of the number of atoms in the ion, a type of limitation that cannot render the claims patentably distinct from the claims of the '538 patent for the same reasons set forth above with respect to the obviousness of Claim 66 of the '080 patent.